Elektronische Bauelemente

SPR100N30SG

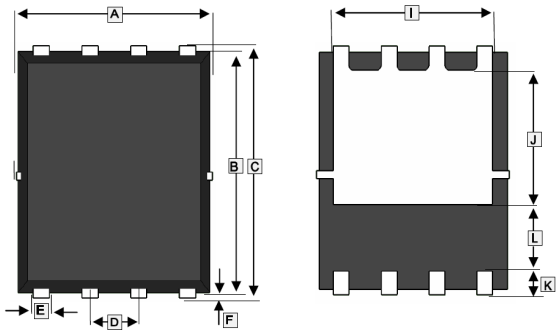
100A, 30V, $R_{DS(ON)}$ 2.1mΩ
N-Ch Enhancement Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SPR100N30SG is the highest performance trench N-ch MOSFETs with extreme high cell density , which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.
The SPR100N30SG meet the RoHS and Green Product with Function reliability approved.

PR-8PP

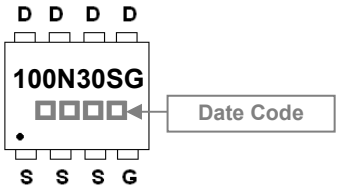


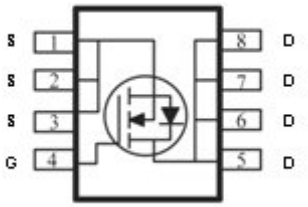
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.9	5.1	G	0.8	1.0
B	5.7	5.9	H	0.254 Ref.	
C	5.95	6.2	I	4.0 Ref.	
D	1.27 BSC.		J	3.4 Ref.	
E	0.35	0.49	K	0.6 Ref.	
F	0.1	0.2	L	1.4 Ref.	

FEATURES

- $R_{DS(on)} \leqq 2.1m\Omega$ @V_{GS}=10V
- $R_{DS(on)} \leqq 3.3m\Omega$ @V_{GS}=4.5V
- High speed power switching, Logic Level
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- PR-8PP Package

MARKING





PACKAGE INFORMATION

Package	MPQ	Leader Size
PR-8PP	3K	13 inch

ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (Silicon Limited)	T_C=25°C	I_D	100	A
	T_C=100°C		75	
Pulsed Drain Current		I_{DM}	400	A
Avalanche Energy, Single Pulse, @L=0.1mH	T_C=25°C	E_{AS}	211	mJ
Power Dissipation	T_C=25°C	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient		$R_{\theta JA}$	50	°C / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	2.5	

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	1.5	3	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	70	-	S	V_{DS}=5V, I_D=25A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
	T_J=125°C		-	-	25		V_{DS}=20V, V_{GS}=0
Static Drain-Source On-Resistance		$R_{DS(ON)}$	-	1.8	2.1	mΩ	V_{GS}=10V, I_D=25A
			-	2.7	3.3	mΩ	V_{GS}=4.5V, I_D=15A
Total Gate Charge		Q_g	-	59	-	nC	V_{GS}=10V
Total Gate Charge		Q_g	-	28	-		V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	13	-		I_D=25A V_{DD}=15V V_{GS}=10V
Gate-Drain (“Miller”) Change		Q_{gd}	-	11	-		
Turn-on Delay Time		$T_{d(on)}$	-	25	-	nS	V_{DD}=15V I_D=1A V_{GS}=10V R_G=2.7Ω
Rise Time		T_r	-	16	-		
Turn-off Delay Time		$T_{d(off)}$	-	60	-		
Fall Time		T_f	-	25	-		
Input Capacitance		C_{iss}	-	3813	-	pF	V_{GS}=0 V_{DS}=15V f=1.0MHz
Output Capacitance		C_{oss}	-	540	-		
Reverse Transfer Capacitance		C_{rss}	-	440	-		
Source-Drain Diode							
Forward On Voltage		V_{SD}	-	-	1.2	V	I_F=30A, V_{GS}=0
Reverse Recovery Time		T_{rr}	-	35	-	nS	I_F=100A, dI/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	25	-	nC	

TYPICAL CHARACTERISTICS CURVE

Fig 1. Typical Output Characteristics

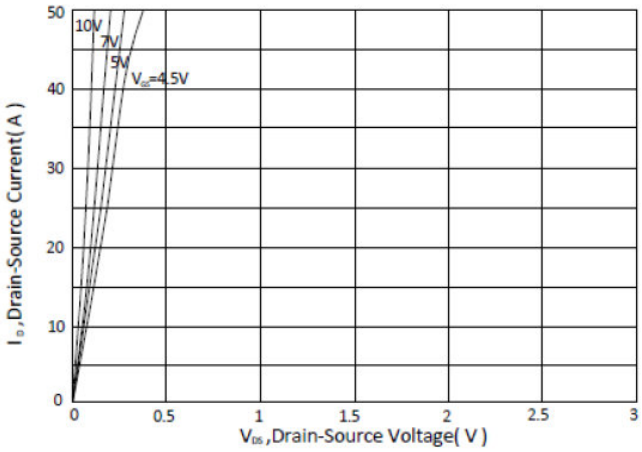


Figure 2. On-Resistance vs. Gate-Source Voltage

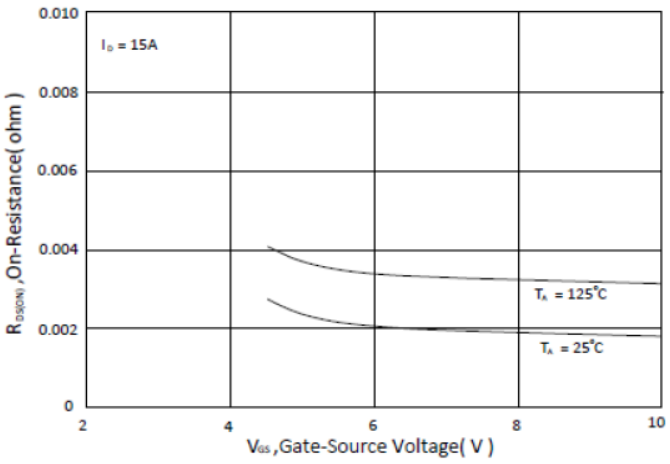


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

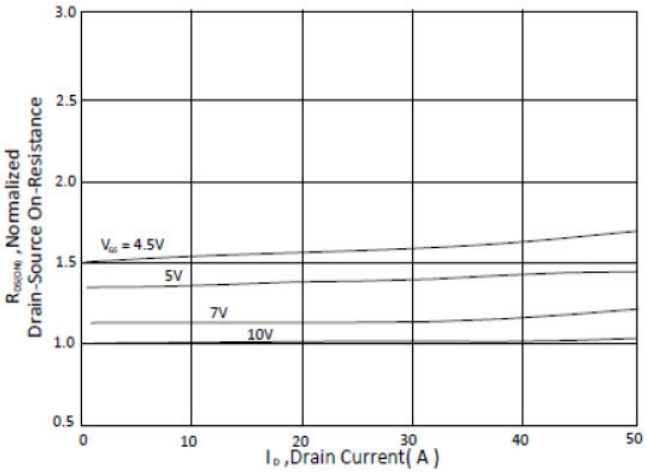


Figure 4. Normalized On-Resistance vs. Junction Temperature

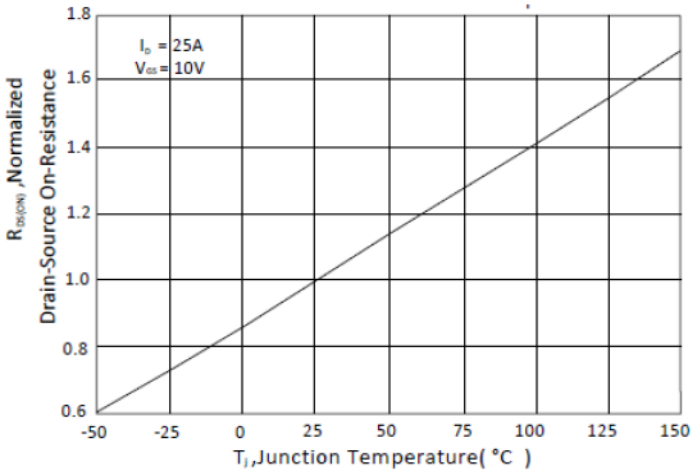


Figure 5. Typical Transfer Characteristics

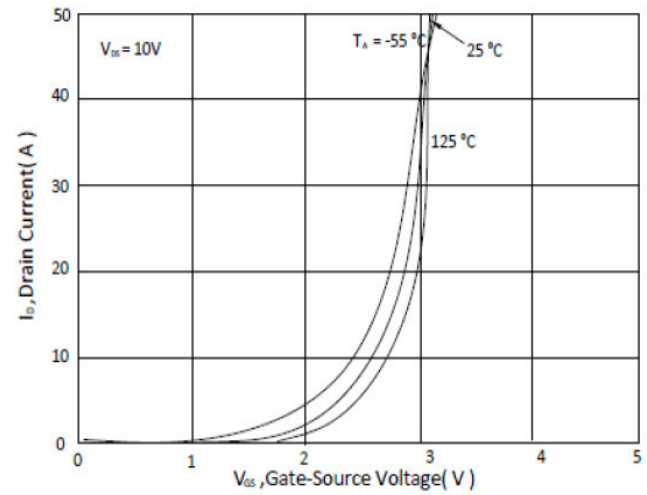
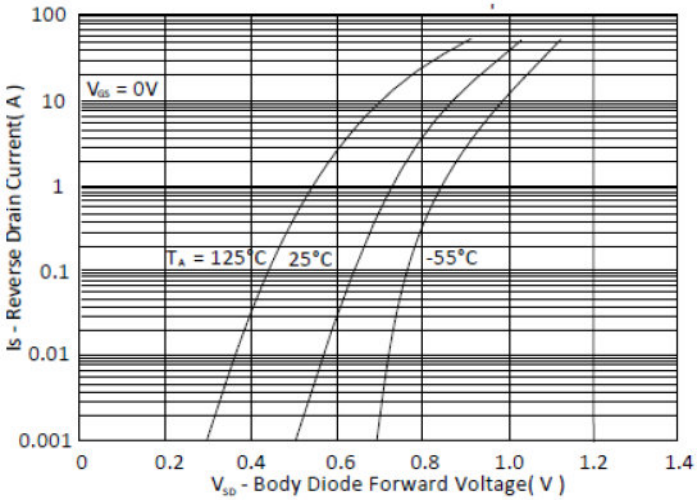


Figure 6. Typical Source-Drain Diode Forward Voltage



TYPICAL CHARACTERISTICS CURVE

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

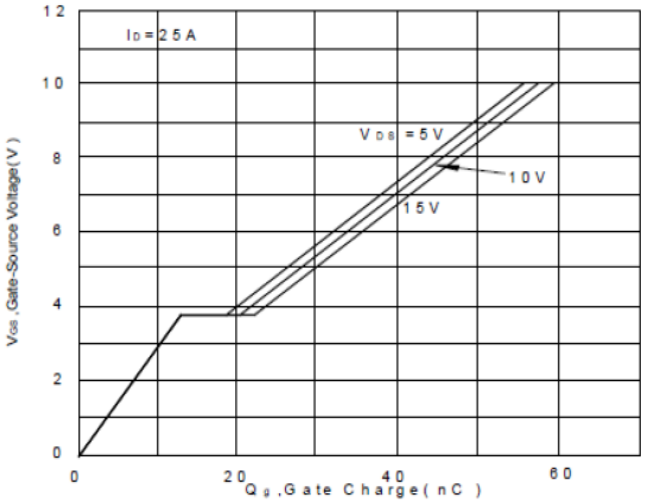


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

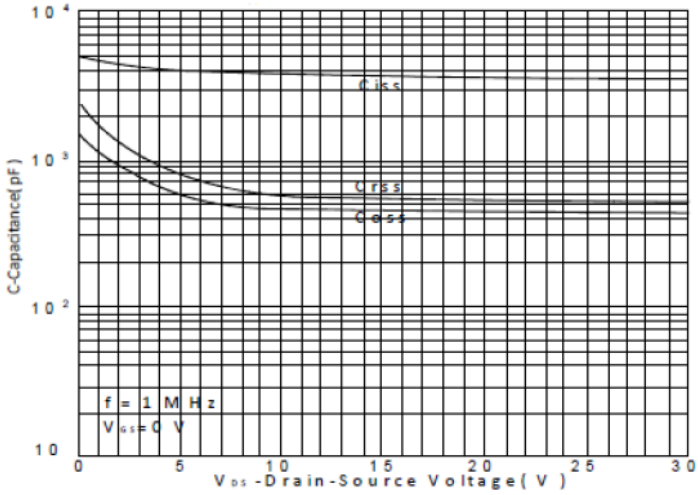


Figure 9. Maximum Safe Operating Area

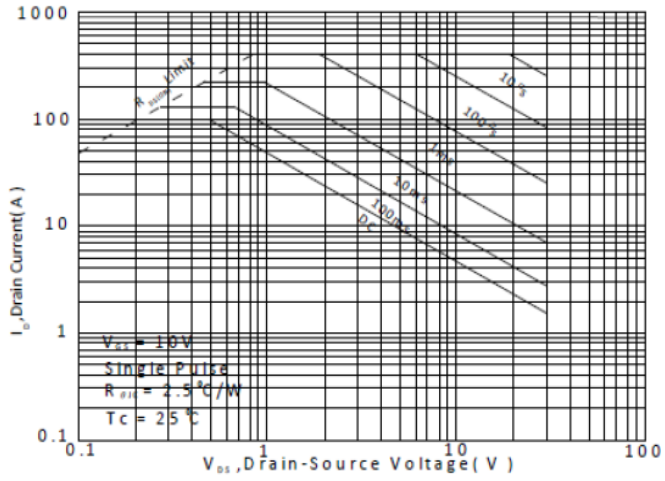


Figure 10. Single Pulse Maximum Power dissipation

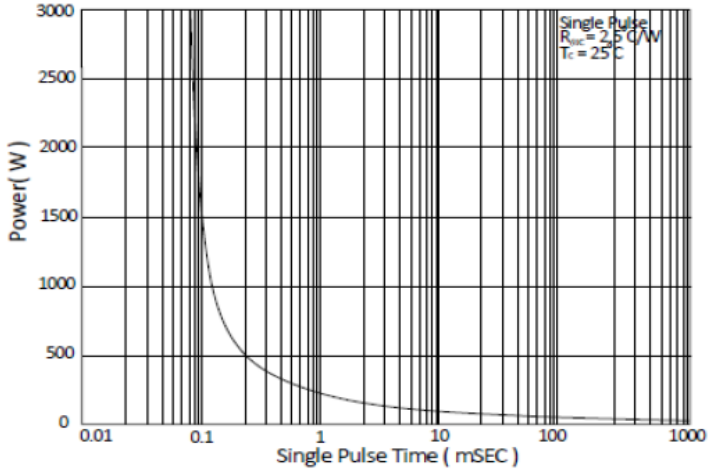


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient